

REMARKS

I. Status of the Claims

Claims 3-5, 7, 8, 10-17, 19, 20, 22, 23, 25, 28-30 and 33-41 are pending in the application. Claims 7, 16, 20, 36, and 37-41 are independent claims. Claims 1, 2, 6, 9, 18, 21, 24, 26, 27, 31 and 32 have been cancelled. No claims have been amended and no new matter has been added.

II. Rejections Over Prior Art

All of the claims have been rejected over U.S. Patent Application Publication No. 2003/0101902 A1 (hereinafter “Reitnauer”), in view of U.S. Patent No. 6,450,615 B2 (hereinafter “Kojima”). Applicants respectfully request reconsideration of the outstanding rejections for the reasons set forth below.

III. Summary of Arguments

Reitnauer does not disclose a colorant in a wax or fat dispersible carrier for the colorant, especially not for a water-based colorant, as set forth in several of the claims herein. Reitnauer discloses edible hot melt inks for printing on a food product (abstract). However, the wax based inks disclosed in Reitnauer contain a wax soluble colorant. In each of the Examples, the colorant is apocarotenal, a water insoluble dispersion in medium chain triglycerides (MCT) (see Attachment 1). Although there is a list of dyes and pigments, including some water-based colorants, at paragraph [0025], Reitnauer does not teach how to disperse a water soluble colorant into a fat or wax base using a carrier for the colorant. Thus Reitnauer does not contain an enabling disclosure of a water based colorant in a fat or wax dispersible carrier for the colorant.

Kojima, on the other hand, merely teaches properties of hot melt inks, including a viscosity in the range of 8-15 cP, a surface tension in a range of 10 and 70 dynes/cm, and apparently in some cases, an image resolution achieved of 300 dpi. Kojima does not teach that printing can be performed on an edible substrate, such as a sugar shell confectionery, or that edible inks can be formulated to meet the requirements of the disclosed printhead. In particular, Kojima does not disclose compatibility of an edible wax based ink for a wax polished sugar shell surface, characterized by a contact angle, for example.

Finally, neither reference provides the motivation to make the asserted combination, adapting edible inks as purportedly disclosed in Reitnauer for use with the printing apparatus of Kojima.

IV. Detailed Discussion of the Differences Between the Claimed Subject Matter and the Cited References

Claim 7 is an independent claim which recites a colorant and a fat or wax dispersible carrier for the colorant. Claim 8 specifies that the carrier is a polyol, Claim 13 specifies that the colorant is an FD& C dye (all of which are water-based and water soluble). Claim 15 further recites that the colorant is present near the solubility limit for the colorant in the carrier. The Office Action does not address the carrier limitation, nor any of the limitations of these dependent claims.

Note that in Reitnauer, colorant is added alone after all of the ink components are prepared (para. [0032]). There is no carrier for the colorant. As an “example[s]of flexibilizers and plasticizers,” Reitnauer discloses that the ink composition may contain glycerin. However, Reitnauer does not teach using glycerin, or other polyol,

as a carrier, not to mention as a carrier for a water soluble colorant. Accordingly, these claims should be indicated as being allowable.

Independent Claim 16 contains the limitations of Claim 7, and further requires that the ink makes a contact angle of less than about 50 degrees with a wax polished confectionery surface. This limitation characterizes the compatibility of the ink with the particular edible substrate surface (see the specification at page 16, "Ink and Ink Image Properties"). Reitnauer and Kojima are both devoid of any disclosure teaching a contact angle of less than about 50 degrees on a wax polished confectionery surface, and the Office Action does not even address the limitations of this independent claim, which was previously indicated as being allowable over Reitnauer. Reconsideration and withdrawal of the rejection of Claim 16 is respectfully requested.

Claim 20 is a method claim, setting forth a resolution achieved greater than 100 dpi. Dependent Claim 25 specifically recites a confectionery substrate, and dependent Claim 30 specifically recites steps for conveying confectionery pieces past a printhead in a stationary position in pockets. Neither Kojima nor Reitnauer discloses any such steps for obtaining a high resolution image on a confectionery piece. Accordingly these claims are allowable over the prior art, as there is no combination of these two references which shows all the features of the claimed invention.

With respect to Claim 37, which is a product claim, even if the combination suggested by the Examiner were made, the prior art does not disclose an edible item having an image with a resolution greater than about 300 dpi, as recited in Claim 37.

Each of the remaining claims, not specifically discussed above, including the dependent claims, incorporates one or more of the limitations discussed above, and should be found allowable over the art of record, for at least the reasons discussed above. Careful reconsideration of each claim, including each dependent claim, is respectfully requested, particularly in view of the fact that most of the subject matter of these claims was indicated in a previous Office Action as being allowable over Reitnauer.

In summary, the references do not disclose the claimed invention. Reitnauer describes making hot melt ink by combining all the ingredients of the base, and then adding the colorant to the molten mixture (see para. [0032]). By contrast, most of the present claims require providing colorant in a carrier, and then dispersing that into a fat or wax base. As discussed above, the disclosure in Kojima is not applicable to printing with edible inks onto edible surfaces, and overall that reference does not overcome the deficiencies of Reitnauer.

Favorable reconsideration of the pending claims and the early passage to issue of this application are respectfully requested.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,


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BASF
The Chemical Company

Beta-apocarotenal 20%

Dispersion in MCT

Technical Bulletin

Beta-apocarotenal 20% is a dark brown oily dispersion containing 20% beta-apocarotenal in medium chain triglycerides. It is stabilized with dl-alpha-tocopherol.

Article #	Article Name	Package
51294498	Beta-apocarotenal 20% Dispersion in MCT	5 kg Al can

Specifications

Assay min. 20% of beta-apocarotenal
(min. 240,000 IU/gram of vitamin A)

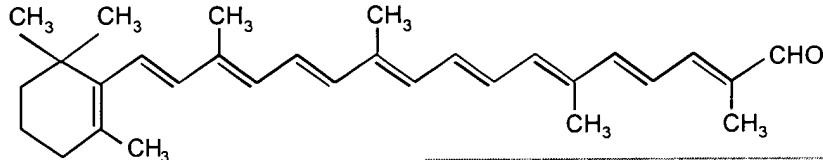
Heavy metals as Pb \leq 10 mg/kg

Lead \leq 5 mg/kg

Arsenic \leq 3 mg/kg

Cadmium .. \leq 1 mg/kg

Mercury \leq 1 mg/kg



Beta-apocarotenal

CAS 1107-26-2

$C_{30}H_{40}O$

Molecular Weight: 416.6

Characteristics

Solubility...soluble in oils and fats; insoluble in water.

Stability...sensitive to oxygen, light, heat and moisture. At 60°C it slowly begins to isomerize resulting in a slight loss of color. It has a shelf life of 24 months stored in the original unopened container under recommended storage conditions.

Applications...used primarily to color fats and oils, margarine, mayonnaise, cheese and other fat-containing products.

Storage...store in tightly closed original container, protected from light, in a dry place at room temperature (max. 25°C). After opening, pad with nitrogen until reuse.

Packaging...5 kg aluminum can.

Country of Origin...Germany

Note...must handle in accordance with the Material Safety Data Sheet

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